

# E-Coat Cleaning Guidelines

Spiral Elements should be cleaned when the permeate rate has declined between 20-30% from the steady state permeate rate that was recorded when either the element was installed initially or last cleaned. Steady state permeate rate is the rate that you record about 15-20 minutes after the element is initially put on the paint, or after the element has been thoroughly cleaned.

**Note: The permeate rate should never drop more than 30% before an element is cleaned.**

## CLEANING PROCEDURES

1. When initially cleaning an element, flush the paint from the element (preferably back to the paint tank) with UF permeate. If your system is large enough, and time permits, do this 2 more times. This helps with the cleaning process and helps recover as much paint as possible.
2. If UF permeate is unavailable, make up a solution of artificial permeate using DI/RO water and acetic acid. Adjust the heat and pH of the solution to that of the paint. Flushing the paint from the element with cold DI/RO water, you can “set” the paint on the element surface, making it difficult to clean. Confirm that this is acceptable with the paint manufacturer before proceeding.
3. After flushing the paint from the element, flush the element to drain. Start with a full heated cleaning tank of DI/RO water, pH adjusted to pH of the paint. Once you have started flushing the element to drain, open the DI/RO water fill valve to the cleaning tank to maintain the level in the cleaning tank. This will allow you to thoroughly flush the element to drain, while gradually lowering the temperature of the water.
4. When the flush water is reasonably clean from the element, slowly close the cleaning pump discharge valve and stop the pump.

## SPECIAL RECOMMENDATIONS

There are many cleaning formulas available for cleaning spiral elements. Many of them were developed in the early days of cathodic paints when the paints were formulated with lead, solvents, and higher solids. These formulas were very effective for those paints, but are not as effective with today's low solvent and no solvent, low lead and no lead paints.

Synder Filtration has formulated a concentrated cleaning product for use with our membranes and other spiral elements. The concentrate ratio is 1:99 and does not require the use of any solvents; it uses muriatic acid (acetic and formic acid may be substituted for muriatic) and is usually effective in 60 minutes or less. The key to its success is cleaning at a pH of 2.0 to 2.2, maintaining a temperature between 100°F and 110°F, and cleaning before the permeate rate has decline too far.

For more information regarding cleaning procedures for E-Coat elements, please contact Synder.